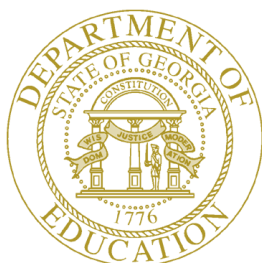# Connections for Classrooms

A collaborative program from the Georgia Department of Education
and the Governor's Office of Student Achievement

Grant Application Release: June 16, 2014

LEA Inventory/Gap Planning Spreadsheet Instructions

Table of Contents

Introduction

As a technology leader in your LEA, you take careful consideration in planning your district's broadband infrastructure. Your plans strive to remove today's obstacles and capture tomorrow's opportunities. They are rooted in technology, but they are centered on people, namely the students and teachers who leverage digital learning to receive and give advanced education opportunities.

The **Connections for Classrooms Grant Program** pursues the goal of providing 100-megabit Internet connectivity to each school and classroom by supporting the unique district plans for broadband infrastructure. The **LEA Inventory/Gap Planning Spreadsheet** is designed to assist educators who want help defining equipment specifications that will achieve broadband goals. It serves as a tool for educators working with their technology vendors to outline a blueprint for achieving high-speed connectivity. As a key artifact of the grant application, the spreadsheet also provides valuable insight for grant administrators and state-level stakeholders who help plan educational funding.
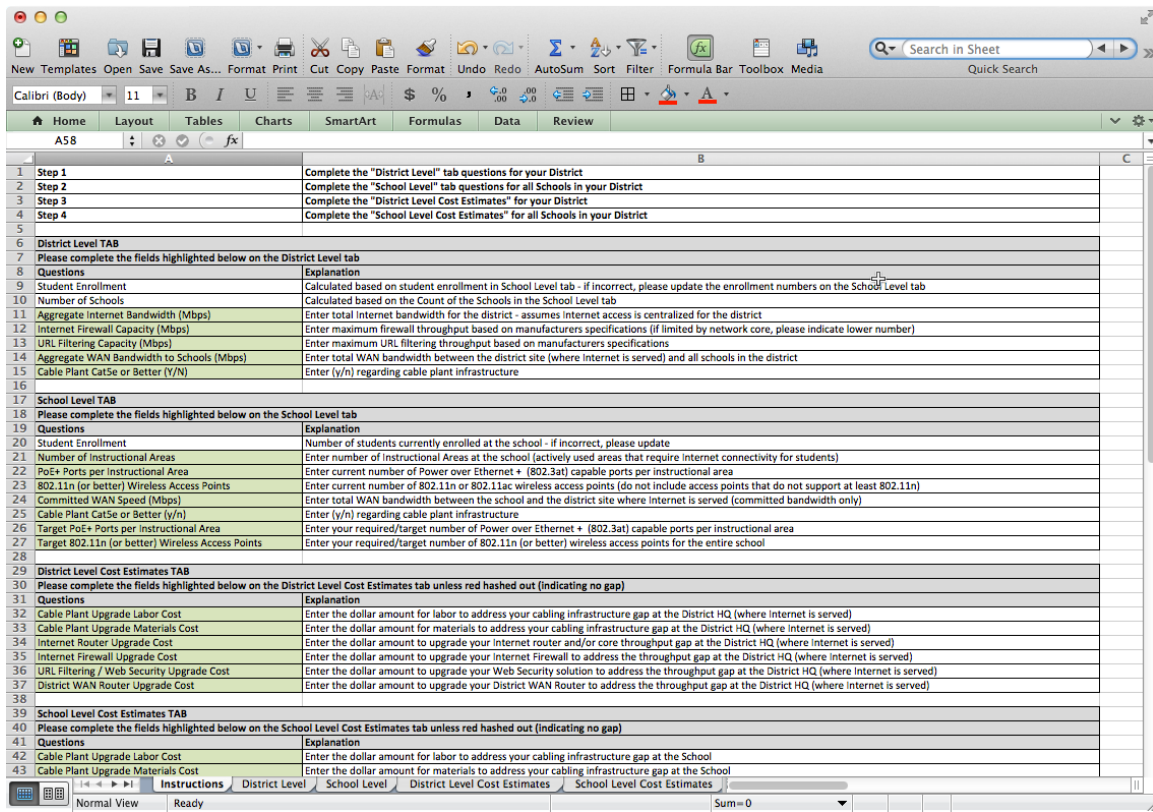
The spreadsheet contains formulas for calculating equipment needs, and it provides a comprehensive school-level walk-through of the input that is needed to help calculate technology gaps. This instructional document reviews the spreadsheet data in detail to provide assistance for completing the spreadsheet.

Whether you are well on your way or just making headway on your plan, the LEA Inventory/Gap Planning Spreadsheet remains an important tool for the Georgia Department of Education, the Governor's Office of Student Achievement and the Georgia Office of Planning and Budget both for consideration of Connections for Classrooms Grant applications and for planning future-year state budgets related to education technology needs.

Spreadsheet Overview

The spreadsheet consists of four "working" tabs and a tab containing instructions, which appears as you open the file for the first time. *See Figure 1.* The working tabs split spreadsheet data into two basic categories, "District Level" and "School Level," which align with the Tier 1 through Tier 3 technology segments commonly referenced in state broadband planning. Those segments are shown in Figure 12, found in the section "Appendix: Broadband Technology Tiers" later in this document.

Figure 1, "Instructions" tab

Cells with a green background (■), like those shown in Figure 1 above, are the titles of data fields that the LEA representative will enter during the completion of the spreadsheet.

Cells with a purple background (■) contain formulas that are calculated automatically as content in data fields is entered. These fields should not be manually completed or edited.

The individual tabs are summarized as follows:

<u>Instructions</u> – Provides an overview of the content found on each tab in the spreadsheet, helpful as a quick reference when completing the information.

District Level (Tier 1) – Evaluates broadband readiness for each district based upon prepopulated information for schools and school enrollment (which may be updated if needed), along with information from the district's current technology capabilities.

School Level (Tiers 2-3) – Evaluates each school's need for WAN, wireless and PoE+ ports based upon prepopulated information for school enrollment (which may be updated if needed), along with information from the school's current technology capabilities and its target capabilities.

District Level Cost Estimates (Tier 1) – A third-party evaluation of the pricing for primary broadband equipment and cable materials and labor to fill the technology gaps indicated by the District Level tab.

School Level Cost Estimates (Tiers 2-3) – A third-party evaluation of the pricing for primary broadband equipment and cable materials and labor to fill the technology gaps indicated by the School Level tab.

The District Level and School Level tabs help record the current and target states of the district's broadband systems, which is useful information to cover in a discussion with your technology provider(s). Ideally the provider(s) would analyze the assessed gaps and design a considered plan for achieving broadband capacity goals. Then, the LEA representative will fill out the estimated expense of the systems needed to accomplish these goals into the District Level Cost Estimates and School Level Cost Estimates tabs.

Each district's technology plan will invariably include information and details not outlined in this spreadsheet, and likewise, this spreadsheet may contain equipment and services not requested in the Connections for Classrooms Grant. However, each data element is distinctively helpful to the consideration of grant awards and to future-year planning for educational broadband funding.

Instructions Tab

The Instructions tab is shown in the initial view upon opening the spreadsheet, and can be accessed anytime by clicking the tab labeled "Instructions". *See Figure 2.*

Figure 2
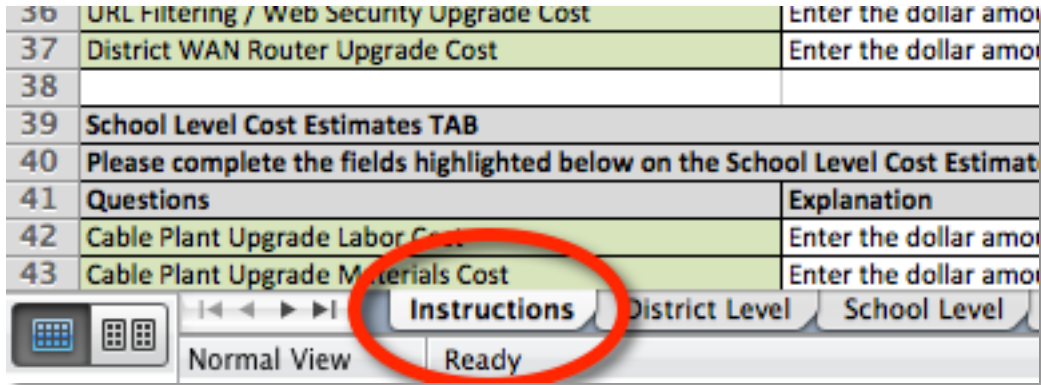
This page describes each of the data elements within the spreadsheet that should be entered as a part of the information request. **Even if you do not intend to apply for the Connections for Classrooms Grant**, this information is helpful to state agencies for future budget and funding planning purposes. Your help is appreciated!

Figure 3 below depicts the information provided on the Instructions tab about the spreadsheet content, including the tab name, prepopulated information which may be updated as needed, requested information that should be entered and a description of each data item.

There is no information to be entered on the Instructions tab. It only serves as a helpful reference as the spreadsheet is being completed.

Figure 3

District Level Tab

The District Level tab is can be accessed anytime by clicking the tab labeled "District Level". *See Figure 4.*

Figure 4
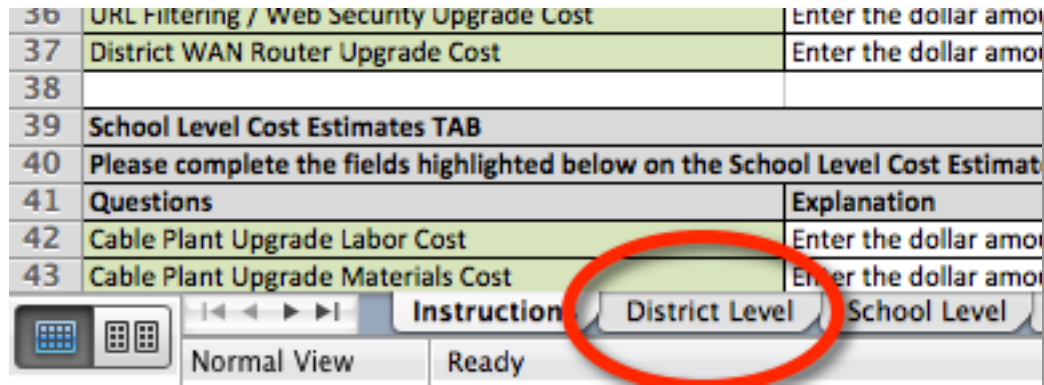
For each district, this page compares the current-state technology environment to the state's goal for providing 100-megabits per second (Mbps) throughput to each school and calculates potential gaps in Internet and WAN bandwidth, firewall capacity and filtering capacity. Any gaps that are identified should be considered when applying for the Connections for Classrooms Grant.

There are three primary areas of this page (*See Figure 5*):
1. District name
2. Current environment data
3. Internet upgrade readiness gap data

Figure 5

1. District Name
Each of Georgia's Local Educational Agencies (LEAs) is listed on this page. For ease of use, you are welcome to delete any rows not related to your district.

2. Current Environment Data
This area includes prepopulated fields and fields that should be completed, described as follows:

Spring 2014 FTE-3 Enrollment – A prepopulated value of the LEA's Full-Time Equivalency (FTE) count from March 2014. Although this information is not used within the spreadsheet for the purposes of calculating technology gaps, it should serve as a factor for assessing district needs, as any changes in the number of users will require adjustments to bandwidth capacity.

Estimated 2014-15 Enrollment – A formula-driven estimation of the anticipated student enrollment for the 2014-2015 school year that is automatically summed from the LEA's entry on the School Level tab. If you add a new school on the School Level tab, please make sure the estimated enrollment is pulled into this value. Although this information is not used within the spreadsheet for the purposes of calculating technology gaps, it should serve as a factor for assessing district needs, as any changes in the number of users will require adjustments to bandwidth capacity.

Number of Schools – A prepopulated count of the LEA's schools that is automatically summed from the number of schools in the LEA on the School Level tab. The number of schools is a direct factor in the calculation of technology needs.

Aggregate Internet Bandwidth (Mbps) – A data entry field that should be completed with an indication of the total Internet bandwidth available for the district's schools use. If you have more than one Internet connection available for school use, this figure would reflect the total bandwidth including all such connections. If you are unsure, the Internet service provider(s) will be able to provide this information. The information is used to calculate technology needs based upon the number of schools in the LEA that, assuming Internet bandwidth is run through a centralized facility, will require enough throughput to support all schools in the LEA simultaneously.

Internet Firewall Capacity (Mbps) – A data entry field that should be completed with an indication of the maximum firewall throughput based on manufacturers specifications. If the network core limits the maximum firewall throughput, this field should be completed using the lower estimated capacity. Internet firewall capacity is dependent upon a variety of factors with which your equipment provider or your technology support provider can offer assistance.

URL Filtering Capacity (Mbps) – A data entry field that should be completed with an indication of the maximum URL filtering throughput based on manufacturers specifications. If you are unsure of the maximum URL filtering capacity, your equipment provider or your technology support provider can offer assistance.

Aggregate WAN Bandwidth to Schools (Mbps) – A data entry field that should be completed with an indication of the total WAN bandwidth between the district site (where Internet is served) and all schools in the district. This figure should reflect the total bandwidth available between the district office and its schools. If you are unsure, your WAN connection provider or your technology support provider can offer assistance.

Cable Plant Cat5e or better (y/n) – A data entry field that should be completed with simply "y" ("yes") or "n" ("no") to indicate Cat5e or better rated cabling availability within the cable plant infrastructure.

3. Internet Upgrade Readiness Gap Data
This LEA includes formula-driven fields that will be **automatically completed** based upon current environment data, described as follows:

Internet Bandwidth Gap (Mbps) – A formula-driven field that considers the number of schools, the aggregate Internet bandwidth and the goal of 100-megabits per school and calculates the gap, if one exists, between current and target capabilities.

Internet Firewall Capacity Gap (Mbps) – A formula-driven field that considers the number of schools, the Internet firewall capacity and the goal of 100-megabits per school and calculates the gap, if one exists, between current and target capabilities.

URL Filtering Capacity Gap (Mbps) – A formula-driven field that considers the number of schools, the URL filtering capacity and the goal of 100-megabits per school and calculates the gap, if one exists, between current and target capabilities.

Aggregate WAN Bandwidth to Schools Gap (Mbps) – A formula-driven field that considers the number of schools, the aggregate WAN bandwidth available for school use and the goal of 100-megabits per school and calculates the gap, if one exists, between current and target capabilities.

School Level Tab

The School Level tab is can be accessed anytime by clicking the tab labeled "School Level". *See Figure 6.*

There are four primary areas of this page (*See Figure 7*):
1. District and school name
2. Current environment data
3. Target environment data
4. Internet upgrade readiness gap data

1. District and School Name

Each of Georgia's Local Educational Agencies (LEAs) and each school within the LEA are listed on this page. For ease of use, you are welcome to delete any rows not related to your district or add rows for schools not listed. However, when adding new schools, please ensure that the shaded cells still contain formulas, and fill out all information to ensure formulas work properly (District ID, District Name, School ID, and School Name).

2. Current Environment Data

This area includes prepopulated fields and fields that should be completed, described as follows:

Spring 2014 FTE-3 Enrollment – A prepopulated value of the LEA's Full-Time Equivalency (FTE) count from March 2014. Although this information is not used within the spreadsheet for the purposes of calculating technology gaps, it should serve as a factor for assessing district needs, as any changes in the number of users will require adjustments to bandwidth capacity.

Estimated 2014-15 Enrollment – A data entry field that should be completed of the LEA's anticipated student enrollment for the 2014-2015 school year, which can be updated if necessary. Although this information is not used within the spreadsheet for the purposes of calculating technology gaps, it should serve as a factor for assessing district needs, as any changes in the number of users will require adjustments to bandwidth capacity.

Number of Instructional Areas – A data entry field that should be completed with an indication of the total number of instructional areas at the school that require Internet connectivity for students. An "instructional area" is a space within a school where teacher-facilitated instruction occurs, including classrooms, multi-purpose rooms, computer labs, and libraries. Administrative offices are not considered instructional areas. This field is a factor used to calculate potential gaps in the number of available Power over Ethernet + (802.3at) ports.

PoE+ Ports per Instructional Area – A data entry field that should be completed with an indication of the current number of Power over Ethernet+ (802.3at) ports available for each Internet-required instructional area in the school. An "instructional area" is a space within a school where teacher-facilitated instruction occurs, including classrooms, multi-purpose rooms, computer labs, and libraries. Administrative offices are not considered instructional areas. This field is a factor used to calculate potential gaps in the number of available PoE+ Ports.

802.11n (or better) Wireless Access Points – A data entry field that should be completed with an indication of the current number of 802.11n or 802.11ac wireless access points. Please do not include access points that do not support at least 802.11n. This field is a factor used to calculate potential gaps in the number of available Wireless Access Points.

WAN Speed (Mbps) – A data entry field that should be completed with an indication of the total available WAN bandwidth between the school and the district site where Internet is served. Please consider committed bandwidth only. If you are unsure, your WAN connection provider or your technology support provider can offer assistance. This field is a factor used to calculate potential gaps in available WAN capacity.

Cable Plant Cat5e or better (y/n) – A data entry field that should be completed with simply "y" ("yes") or "n" ("no") to indicate Cat5e or better rated cabling availability within the school's cable plant infrastructure.

3. Target Environment Data
This area includes prepopulated fields and fields that should be completed, described as follows:

Target PoE+ Ports per Instructional Area – A data entry field that should be completed with an indication of the LEA's target number of Power over Ethernet+ (802.3at) ports for each Internet-required instructional area at the school. An "instructional area" is a space within a school where teacher-facilitated instruction occurs, including classrooms, multi-purpose rooms, computer labs, and libraries. Administrative offices are not considered instructional areas. This field is a factor used to calculate potential gaps in the number of available PoE+ Ports.

Target 802.11n (or better) Wireless Access Points – A data entry field that should be completed with an indication of the target number of 802.11n or 802.11ac wireless access points. This field is a factor used to calculate potential gaps in the number of available Wireless Access Points.

4. Internet Upgrade Readiness Gap Data
This area includes formula-driven fields that will be **automatically completed** based upon current environment data, described as follows:

WAN Gap (Mbps) – A formula-driven field that compares the school's current WAN capability to the goal of 100-megabits per school and calculates the gap, if one exists, between current and target capabilities.

PoE+ Port Gap – A formula-driven field that compares the school's current number of PoE+ Ports per instructional area to the stated target number of PoE+ Ports and calculates the gap, if one exists, between current and target capabilities. An "instructional area" is a space within a school where teacher-facilitated instruction occurs, including classrooms, multi-purpose rooms, computer labs, and libraries. Administrative offices are not considered instructional areas.

Wireless Access Point Gap – A formula-driven field that compares the school's current number of Wireless Access Points to the stated target number of Wireless Access Points and calculates the gap, if one exists, between current and target capabilities.

District Level Cost Estimates Tab

The District Level Cost Estimates tab can be accessed anytime by clicking the tab labeled "District Level Cost Estimates". *See Figure 8.*

Figure 8
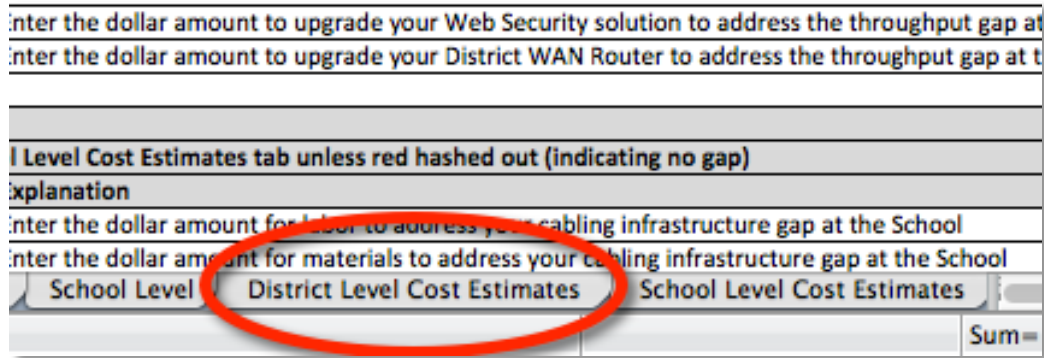
For each district, this page records the third-party costs estimated to upgrade the current-state technology environment to the state's goal for providing 100-megabits per second (Mbps) throughput to each school, including district-level upgrades required for firewalls, routers, filtering/security devices and cable plants.

Even if you do not intend to apply for the Connections for Classrooms Grant, this information is helpful to state agencies for budgetary planning purposes. Your help is appreciated!

There are two primary areas of this page (*See Figure 9*):
1. District name
2. Upgrade cost estimates

Figure 9
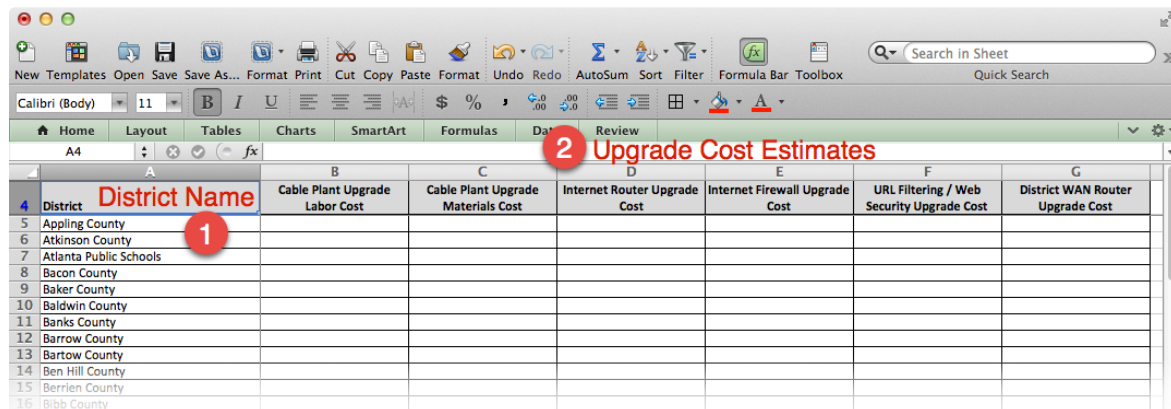
1. District Name

Each of Georgia's Local Education Agencies (LEAs) is listed on this page. For ease of use, you are welcome to delete any rows not related to your district.

2. Upgrade Cost Estimates

This area includes fields that should be completed, described as follows:

<u>Cable Plant Upgrade Labor Cost</u> – A data entry field that should be completed with an indication of the third-party estimate for labor related to prescribed upgrades to the district-level cable plant in order to meet broadband goals. This breakdown is helpful as labor costs are treated differently in standard accounting practices from materials costs.

<u>Cable Plant Upgrade Materials Cost</u> – A data entry field that should be completed with an indication of the third-party estimate for materials related to prescribed upgrades to the district-level cable plant in order to meet broadband goals. This breakdown is helpful as materials costs are treated differently in standard accounting practices from labor costs.

<u>Internet Router Upgrade Cost</u> – A data entry field that should be completed with an indication of the third-party estimate for district-level Internet router equipment or core throughput related to prescribed upgrades necessary for meeting broadband goals.

<u>Internet Firewall Upgrade Cost</u> – A data entry field that should be completed with an indication of the third-party estimate for district-level Internet firewall equipment related to prescribed upgrades necessary for meeting broadband goals.

<u>URL Filtering / Web Security Upgrade Cost</u> – A data entry field that should be completed with an indication of the third-party estimate for the district-level Web Security solution related to prescribed upgrades necessary for meeting broadband goals.

<u>District WAN Router Upgrade Cost</u> – A data entry field that should be completed with an indication of the third-party estimate for the district-level WAN router related to prescribed upgrades necessary for meeting broadband goals.

Information on the specific types of equipment and services that are eligible for grant funding is available in the "Related Files" area on the Connections for Classrooms website located:
https://gosa.georgia.gov/connections-classrooms-grant-program

School Level Cost Estimates Tab

The School Level Cost Estimates tab can be accessed anytime by clicking the tab labeled "School Level Cost Estimates". *See Figure 10.*
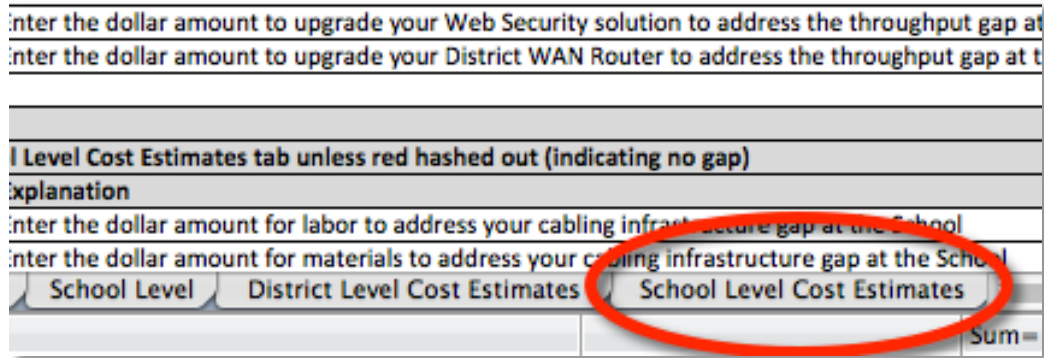
Figure 10

For each school, this page records the third-party costs estimated to upgrade the current-state technology environment to the state's goal for providing Internet access into classrooms, including school-level upgrades required for routers, PoE+ Ports, wireless access point devices and cable plants.

Even if you do not intend to apply for the Connections for Classrooms Grant, this information is helpful to state agencies for budgetary planning purposes. Your help is appreciated!

There are two primary areas of this page (*See Figure 11*):
1. District and school name
2. Upgrade cost estimates

Figure 11

1. District and School Name
Each of Georgia's Local Education Agencies (LEAs) and each school within the LEA are listed on this page. For ease of use, you are welcome to delete any rows not related to your district or add rows for schools not listed.

2. Upgrade Cost Estimates
This area includes fields that should be completed, described as follows:

Cable Plant Upgrade Labor Cost – A data entry field that should be completed with an indication of the third-party estimate for labor related to prescribed upgrades to the school-level cable plant in order to meet broadband goals. This breakdown is helpful as labor costs are treated differently in standard accounting practices from materials costs.

Cable Plant Upgrade Materials Cost – A data entry field that should be completed with an indication of the third-party estimate for materials related to prescribed upgrades to the school-level cable plant in order to meet broadband goals. This breakdown is helpful as materials costs are treated differently in standard accounting practices from labor costs.

School WAN Router Upgrade Cost – A data entry field that should be completed with an indication of the third-party estimate for the school-level WAN router related to prescribed upgrades necessary for meeting broadband goals.

PoE+ Port Upgrade Cost – A data entry field that should be completed with an indication of the third-party estimate for providing the prescribed upgrades to instructional area PoE+ Ports.

Wireless Access Point Upgrade Cost – A data entry field that should be completed with an indication of the third-party estimate for providing the prescribed upgrades to instructional area wireless access points.
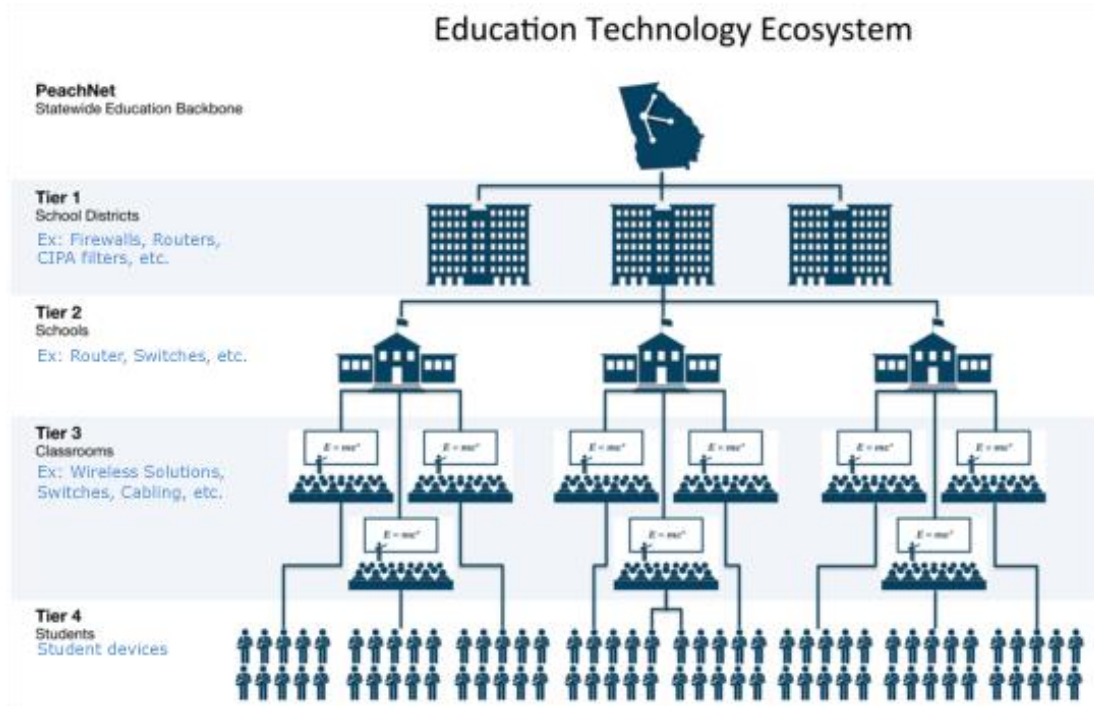
Information on the specific types of equipment and services that are eligible for grant funding is available in the "Related Files" area on the Connections for Classrooms website:
https://gosa.georgia.gov/connections-classrooms-grant-program

Appendix: Broadband Technology Tiers

Figure 12 below provides a high-level representation of the tiers of technology that provide broadband Internet access to Georgia's K-12 education institutions.

Figure 12

The Connections for Classrooms grant prioritizes school-level "Tier 2" technologies and considers district level "Tier 1" requests. Requests for classroom level "Tier 3" technologies will also be reviewed and supported based upon the level of funding available for those requests.

Information on the specific types of equipment and services that are eligible for grant funding is available in the "Related Files" area on the Connections for Classrooms website located: https://gosa.georgia.gov/connections-classrooms-grant-program